What's in Your Water?

Every gallon of Leesburg's water

is carefully treated by State-licensed plant operators

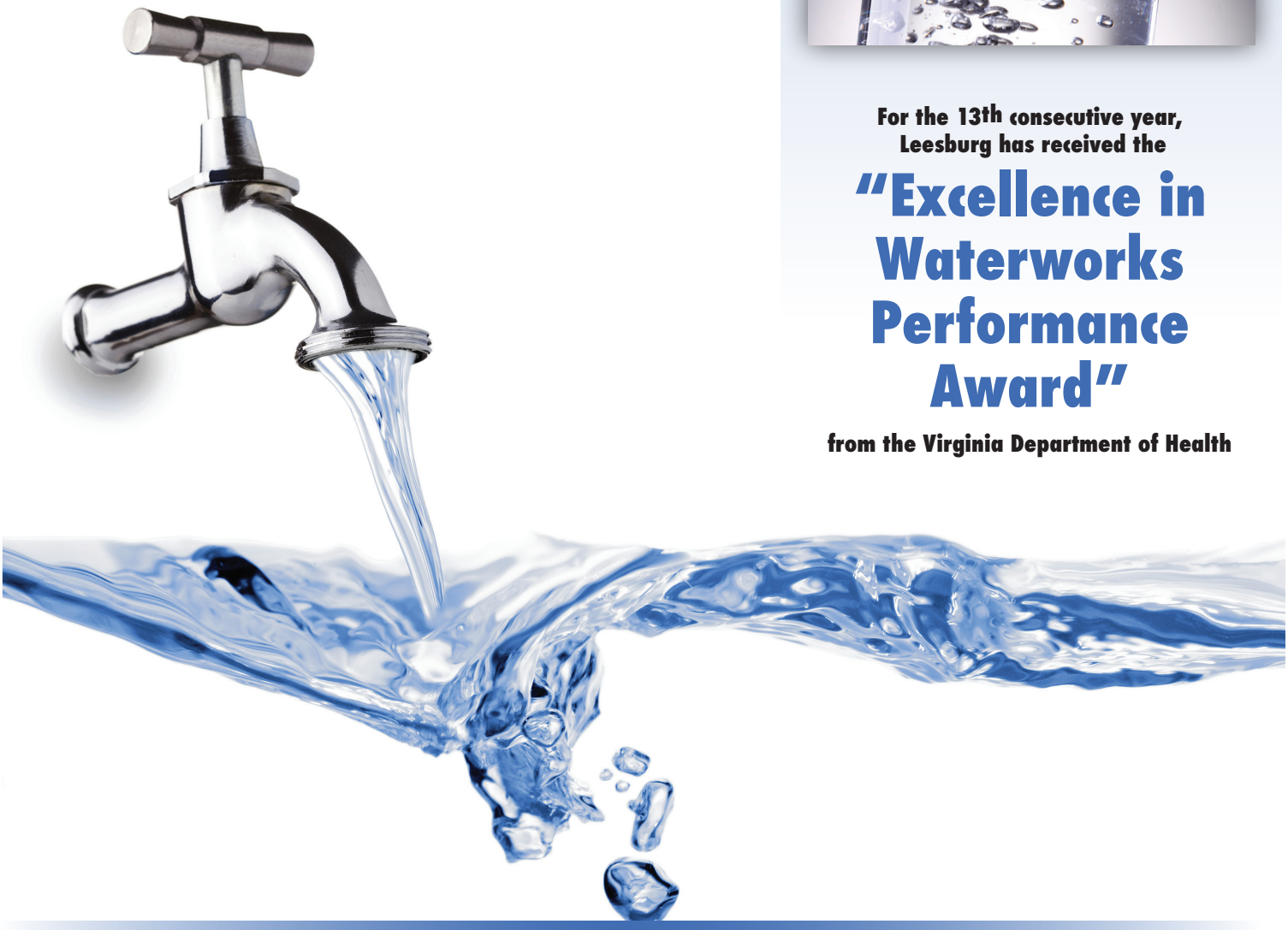
meets all water quality regulations

is rigorously monitored for quality

For the 13th consecutive year, Leesburg has received the

"Excellence in Waterworks Performance Award"

from the Virginia Department of Health



2016 WATER QUALITY REPORT

TOWN OF LEESBURG, VIRGINIA

March 2017

I am pleased to present Leesburg's 2016 Annual Water Quality Report. I am proud to report that Leesburg's drinking water continues to be safe and chemically pure and meets or exceeds all quality standards established by the Federal Safe Drinking Water Act. This report is designed to inform you about the quality water we deliver to you every day.

In 2016, for the 13th consecutive year, Leesburg's Water Supply Division received the Excellence in Waterworks Operations/Performance Award from the Virginia Department of Health. This award focuses on excellence in overall plant performance and filtration operations by recognizing organizations that set and achieve goals well beyond the established regulations.

In order to ensure safe drinking water for our customers, Leesburg performs extensive water quality monitoring and testing. In all, we test for over 120 constituents and possible contaminants. You'll find a summary of the testing and monitoring results in the "Substances Detected In Our Water" table on page 3 of this report. This report also contains information about:

- The sources and treatment of Leesburg's drinking water
- Drinking water regulations and general water information
- How to take part in Leesburg's decision-making processes

We hope you will take time to read this important report, and we encourage you to participate in decisions involving your drinking water. To obtain more information regarding any topic in this report, or if you have any questions, comments or suggestions on how we can make next year's report more useful, please call our Utilities Department at (703) 771-2750.

Sincerely,

Kelly Burk
Mayor, Town of Leesburg

Substances Detected in Our Water

SUBSTANCE (UNITS)	LEVEL DETECTED (RANGE)	MCL (ALLOWED)	GOAL (EPAs MCLG)	TYPICAL SOURCE	MEETS STANDARD
Copper [1,2] (ppm)	0.3 Locations exceeding action level = 0	Action Level 1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits	✓
Fluoride [3] (ppm)	0.85 (< 0.20 - 0.85)	4	4	Water additive which promotes strong teeth; erosion of natural deposits	✓
Haloacetic Acids (HAAs) (ppb)	30.8 (9.7 - 41.9)	60	n/a	Byproduct of drinking water disinfection	✓
Lead [1,4] (ppb)	2 Locations exceeding action level = 0	Action Level 15	zero	Corrosion of household plumbing systems; erosion of natural deposits	✓
Chlorine MRDL (ppm)	1.34 (0.22 - 2.20)	4 MRDL	4 MRDLG	Water additive used for disinfection to control microbes	✓
Nitrate/Nitrite [5] (ppm)	Rollins WFP: 1.04 Paxton Well: 4.6	10	10	Runoff from fertilizer use; septic systems; erosion of natural deposits	✓
Gross Beta (pCi/L)	Rollins WFP: 5.48 Paxton Well: 3.3	50	zero	Erosion of natural deposits	✓
Turbidity [6]	0.08	Treatment Technique	n/a	Soil runoff	✓
Total Organic Carbon (TOC) [7] (ratio)	2.1 (1.43 - 3.59)	Treatment Technique	n/a	Naturally occurring organic matter	✓
Trihalomethane (THM) (ppb)	60 (13.7 - 109)	80	n/a	Byproduct of drinking water disinfection	✓
Barium [8] (ppm)	Rollins WFP: 0.03 Paxton Well: 0.09	2	2	Drilling wastes and metal refinery discharge; erosion of natural deposits	✓

All testing results are from 2016 unless otherwise noted below.

[1] Lead and copper testing is required every three years. Data reported are from 2016. Next testing date is 2019.

[2] None of the 32 sampling locations tested in 2016 exceeded the Action Level for Copper. Copper is regulated at the customers' tap.

[3] Fluoride is added to the water produced by the Town of Leesburg for its positive health benefit in the promotion of strong teeth.

[4] None of the 32 sampling locations tested in 2016 exceeded the Action Level for Lead. Lead is regulated at the customers' taps.

[5] Nitrate Testing is required once each year.

[6] Turbidity levels are measured during the treatment process after filtration. The turbidity level of filtered water shall be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month and less than 1 NTU at all times. The lowest monthly percentage of Town of Leesburg samples meeting the turbidity limits was 100%.

[7] TOC is reported as a removal ratio on an annual average basis, the annual average removal ratio must be equal to or greater than 1.0.

[8] Metals testing is conducted annually at the WFP and every three years at Paxton Well; Paxton Well Barium results are from 2016.

Substances NOT detected in your drinking water

Your water was tested for several **Regulated Volatile (VOC) and Synthetic Organic Chemicals (SOC)** including petroleum-based products, pesticides, herbicides, and industrial chemicals. Additionally, your water was monitored for a number of inorganic chemicals for which the EPA has set MCLs. Other than those outlined in the table above, none of these chemicals were detected.

ABBREVIATIONS & DEFINITIONS

Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL: Maximum Contaminant Level (level of contaminant that is allowed in drinking water by the EPA)

MCLG: Maximum Contaminant Level Goal (level of contaminant at which there is no known or expected risk to health)

MRDL: Maximum Residual Disinfectant Level (a measure of the chlorine residual concentration at specified points in the water distribution system.)

MRDLG: Maximum Residual Disinfectant Level Goal (Level of disinfectant at which there is no known or expected risk to health) - calculated on a running annual average basis.

ND: Not detected

NTU: Nephelometric Turbidity Units (a measure of water clarity)

pCi/L: picocuries per liter (a measure of radioactivity in water)

ppt: one part per trillion (corresponds to three seconds in 100,000 years or one penny in $10 Billion).

ppb: one part per billion (corresponds to one minute in 2,000 years or one penny in $10,000,000)

ppm: one part per million (corresponds to one minute in two years or one penny in $10,000)

Conversion: one ppb equals 0.001 ppm

Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water

Turbidity: A measure of the clarity of water, measured in Nephelometric Turbidity Units (NTUs) . Turbidity has no health effects but can hinder the effectiveness of disinfection. We monitor turbidity because it is a good indicator of water quality.

Water Supply Division

Learning About Your Drinking Water

The U.S. Environmental Protection Agency (EPA) is authorized by Congress to enforce the Safe Drinking Water Act Amendments of 1996 in regulating water systems for public health protection and establishing water standards. The 1996 Amendments require all water suppliers to issue a water quality report, called a consumer confidence report (CCR), to consumers on an annual basis. The Virginia Department of Health (VDH) has the responsibility for enforcing the Federal Water Quality Standards in the Commonwealth.

The Town of Leesburg is proud to report that the drinking water produced by the Department of Utilities was well within all federal and state standards for drinking water during 2016. This report is a summary of the water quality provided to our customers in 2016 and includes information about:

- your drinking water sources and quality
- drinking water regulations
- treatment processes used to assure that your drinking water meets or exceeds federal and state regulations
- what your drinking water contains.
- multiple barrier programs to ensure high water quality

The Town of Leesburg owns and operates the Kenneth B. Rollins Water Filtration Plant (WFP), which withdraws water from the Potomac River. Leesburg has one source of groundwater supply, the Paxton Well. Approximately 96% of Leesburg's water is produced at the Water Filtration Plant using river water and 4% is produced by the Paxton Well using groundwater.

The Virginia Department of Health (VDH) conducted a source water assessment of the Leesburg water system in 2002. This assessment determined that the Town's river and groundwater sources were highly susceptible to contamination, based on criteria in the state's Source Water Assessment Program. The Town is working, in conjunction with the EPA and the Potomac River Basin Drinking Water Source Protection Partnership (Potomac DWSPP), to address the concerns over susceptibility to contamination. For additional information on the VDH assessment report, contact the Town of Leesburg Utilities Department at (703) 771-2750. To learn more about the Potomac DWSPP, please visit their website at **www.potomacdwspp.org/utilities**.

Because human activity has such a profound impact on the quality of the water found in our streams, rivers, lakes and even subterranean sources, it is important that we all try to minimize activities that can degrade water quality. Here are some simple things that you can do in your yard and in your home. The Utilities Department has additional Tips & Guidelines at www.leesburgva.gov.

- **Use less fertilizer.** The average homeowner uses ten times more fertilizer than is necessary. Test your soil before application.
- **Apply fertilizer in the fall** instead of spring to help reduce nitrogen and phosphorus runoff/leaching often caused by heavy rains.
- **Leave grass clippings on lawn** as a natural fertilizer.
- **Mow grass to proper height.** Three inches is recommended.
- **Plant native or well adapted plants** that are likely to require less water, fertilizer, and pesticides.
- **Flush pet waste** down the toilet or wrap securely and place in trash.
- **Reduce your use of household chemicals.** Look for non-toxic cleaners.
- **Don't pour chemicals down the drain!** Dispose of household chemicals through a hazardous waste recycling program.
- **Don't flush unused pharmaceuticals!** Ask your pharmacist about proper disposal or use the Leesburg Police Department dropbox.

The U.S. Environmental Protection Agency (EPA) sets MCLs at very stringent levels. In developing the standards, EPA assumes that the average adult drinks two liters of water each day throughout a 70-year lifespan. EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

The State allows the Town to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, was collected prior to 2016.

Virginia's drinking water sources include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from the presence of animal or human activity.

Contaminants that may be present in source water include:

- biological contaminants such as viruses and bacteria
- inorganic contaminants such as salts and metals
- organic chemicals that are by-products from industrial or petroleum use
- radioactive materials
- endocrine disrupting chemicals
- pharmaceuticals and personal care products

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

ABOUT DRINKING WATER CONSTITUENTS

TURBIDITY is measured to determine the clarity of water. Turbidity in excess of 5 NTU is noticeable to the average person. Regulations require that 95% of samples collected in a monthly reporting period must be less than or equal to 0.3 NTU.

The Town of Leesburg has adopted a more stringent goal of 0.1 NTU for finished water turbidity. In 2016 the goal was achieved.

FLUORIDE in drinking water is effective at reducing the number of dental cavities at the recommended range of 0.7 ppm to 1.2 ppm. Recent evidence suggests that the lowest end of that range may be optimal. The Town of Leesburg currently adds approximately 0.8 ppm fluoride.

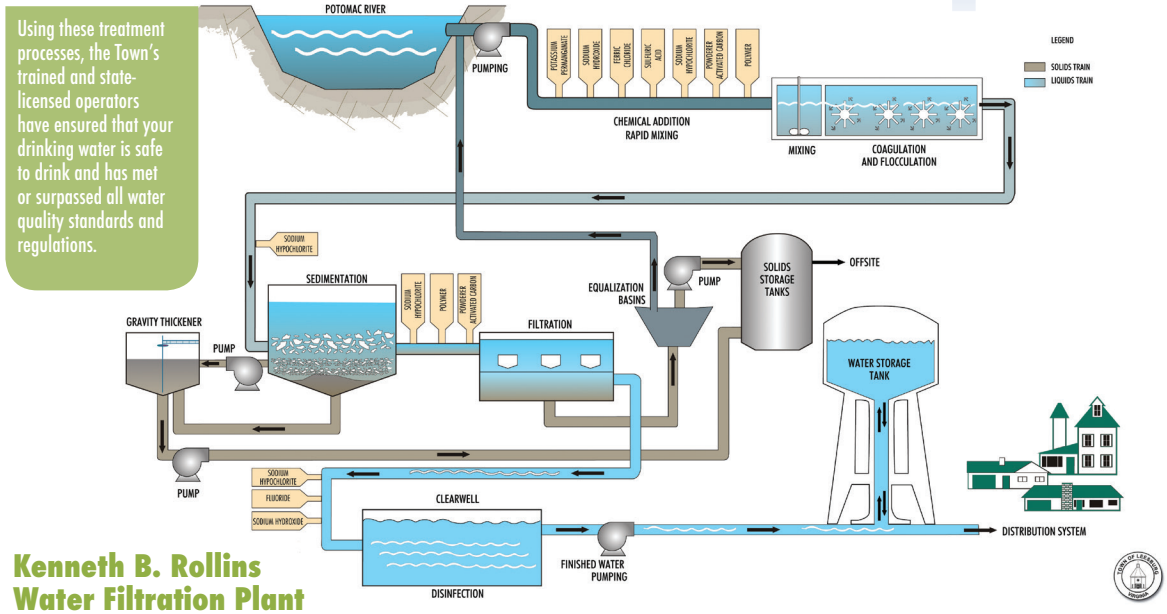
COPPER is an essential element, but some people who drink water containing copper in excess of the Action Level over a prolonged period could experience liver damage.

Next page

Understanding Your Drinking Water

From Source to Tap

Using these treatment processes, the Town's trained and state-licensed operators have ensured that your drinking water is safe to drink and has met or surpassed all water quality standards and regulations.



Kenneth B. Rollins Water Filtration Plant

DISINFECTION BYPRODUCTS

Disinfection is an absolutely essential component of drinking water treatment. Disinfection prevents the occurrence and spread of many serious and potentially deadly water-borne diseases such as cholera, dysentery and typhoid. When chlorine is used for disinfection, it can react with naturally occurring organic matter in the water that largely results from natural breakdown of vegetation, leaves and wood. Minute amounts of disinfection byproducts can be formed as a consequence of these reactions. People who drink water that contains high levels of disinfection byproducts over a number of years may have an increased risk of health concerns such as liver, kidney or central nervous system problems, and may have an increased risk of developing cancer. As a result, similar regulations limit the amount of disinfection byproducts in your water to control these risks. Two categories of disinfection byproducts are specifically limited by these regulations: trihalomethanes (THMs) and haloacetic acids (HAAs). In addition, regulations require specified levels of removal of naturally occurring organic matter using the total organic carbon (TOC) analysis as the specific measure and place limits on the allowable levels of chlorine (MRDL) and other disinfectants that can be used in the water system. This provides a more extensive basis of control to limit the potential for exposure to other disinfection byproducts.

Regulations require that total THMs and HAAs be reported as running annual averages to the Virginia Department of Health. Averages are calculated quarterly on samples taken at various locations throughout our distribution system. Our water meets the disinfection byproducts standards.

MICROBIOLOGICAL

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Treatment such as filtering and disinfecting the water removes or destroys the microbial contaminants.

Regulations require that no more than 5% of treated water samples test positive for coliform presence per month. The Town of Leesburg analyzes more than 70 samples per month at various locations throughout our distribution system. Our water meets the coliform standard.

Cryptosporidium and *Giardia* are microscopic protozoa that, when ingested, can cause illness in humans. These parasites can be found in swimming pools, contaminated foods, daycare centers, nursing homes, streams, rivers, and drinking water. In 2015, the Town began a 24 consecutive month *Cryptosporidium* sampling program of its source water as part of EPA's Long Term 2 Enhanced Surface Water Treatment Rule. Of the 12 samples collected in 2016, six source water samples indicated the presence of *Cryptosporidium.*

The Town of Leesburg has instituted multiple barriers of protection at the Water Filtration Plant such as enhanced coagulation, multi-media filtration, disinfection and additional turbidity removal techniques ensuring optimum removal of these parasites. Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons—such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, the elderly and infants—can be particularly at risk from infections. These people should seek advice about drinking water from health care providers, the EPA, or the Center for Disease Control. Guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and *Giardia* are available from the Safe Drinking Water Hotline at (800) 426-4791.

RADIOLOGICAL

Certain minerals are radioactive and may emit forms of radiation known as alpha and beta radiation. People who drink water contaminated with alpha and beta radiation at high levels over many years may have an increased risk of getting cancer.

Results are expressed in picocuries per liter (pCi/L). The MCL expressed as an annual limit is calculated on the basis of a two-liter per day drinking water intake. Our water meets the EPA radiological standards.

NITRATES in drinking water at levels above 10 ppm are a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Nitrate levels in Leesburg's water system are significantly lower than the regulatory limits. However, if you are caring for an infant, you should ask for advice from your health care provider.

LEAD is a toxic metal that accumulates in the bones of humans and animals and is linked to nervous system disorders.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Town of Leesburg is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds or until it becomes cold or reaches a steady temperature before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the **Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead**

25 W Market St, Leesburg, VA 20176

Ongoing Water System Improvements

In 2016, the Town's Utility Maintenance Division replaced approximately 300 linear feet of aging water distribution system pipe lines and associated valves and hydrants. In all, the Town maintains 218 miles of water mains, 2,600 fire hydrants and over 15,500 service connections.

Water System Protection

Do you have an irrigation system or are you installing one? Homeowners installing in-ground irrigation systems must obtain a plumbing permit from the Loudoun County Building and Development Department. Your drinking water must be protected with a Reduced Pressure Zone backflow prevention device (RPZ). This device must be tested by a certified technician and the results submitted to the Town's Utilities Department prior to the activation of the irrigation system. Thereafter, the device must be tested annually. For additional information, please contact the Utilities Department at (703) 771-2762 or visit the Town's website at www.leesburgva.gov/backflow.

For more information about water quality, call the Town of Leesburg's Water Supply Division at (703) 737-7110.

For additional copies of this report, call the Town of Leesburg Department of Utilities at (703) 771-2750. An online report is available at www.leesburgva.gov/waterqualityreport.

Para más información acerca de la calidad del agua, favor de llamar al Departamento del Agua del Town of Leesburg al teléfono (703) 737-7110. Para copia de este reporte, llame al Departamento de Utilidades del Town of Leesburg al teléfono (703) 771-2750. Puede conseguir una copia de este reporte en nuestra página de web: www.leesburgva.gov/waterqualityreport.

Do you have suggestions or concerns regarding your drinking water?

Public comments are welcome at Leesburg Town Council meetings (2nd & 4th Tuesdays each month at 7:00pm, Leesburg Town Hall, 25 W Market St), or email the Council at council@leesburgva.gov.